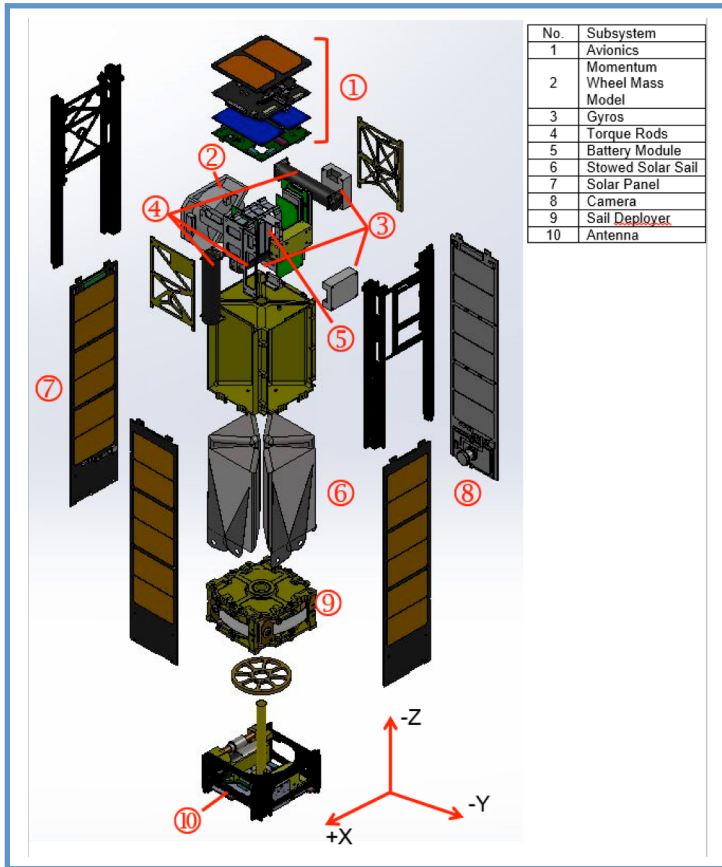


LightSail-A CubeSat Description
 The Planetary Society – 3U



LightSail-A is the first of two privately developed solar sail projects conceived and led by The Planetary Society. It will validate the spacecraft design and subsystem functional operation as well as deployment of a ~32 m² Mylar sail as a precursor to a more ambitious LightSail-B mission. Partners include Stellar Exploration, Inc., Cal Poly SLO and Ecliptic Enterprises Corporation.

Upon ejection from the P-POD, LightSail-A will begin the boot-up sequence. After successful completion of boot-up sequence, the unit will start up the ACS and go into detumble mode. At 45 minutes after ejection, the

antenna will deploy and UHF beacon will commence shortly after. The ground team will acquire and track LightSail-A for approximately 2 weeks, verifying all parameters are within tolerance. After 2 weeks, the solar panels will be deployed. A day after the solar panels are deployed, the 32 m² solar sail will be deployed. We expect mission success 2 days after solar sail deployment: verify successful deployment, downlink image, and track orbital change. LightSail-A will deorbit several weeks after.

The CubeSat structure is made of Aluminum 6061-T6. It contains all standard commercial off the shelf (COTS) materials, electrical components, PCBs and solar cells. The payload consists of a 32 m² mylar solar sail with a custom metal boom.

There are no pressure vessels, hazardous or exotic materials.

The electrical power storage system consists of common lithium-polymer batteries with over-charge/current protection circuitry. The batteries are not UL listed, however the batteries will be tested per AFSPCMAN 91-710 to ensure compliance with safety requirements.